

A SHORT REVIEW OF THE TRIBES ORSODACNINI  
AND CRIOCERINI OF THE COLEOPTEROUS  
FAMILY CHRYSOMELIDÆ WITH SPE-  
CIAL REFERENCE TO SPECIES OF  
WESTERN UNITED STATES

BY HAROLD R. BRISLEY

(Continued from page 60)

Genus ZEUGOPHORA Kunze

The genus is sufficiently characterized in the key to enable it to be distinguished from other genera in the tribe. It is composed of seven North American species, five of which occur west of the Rocky Mountains.

KEY TO THE WESTERN SPECIES OF THE GENUS  
ZEUGOPHORA KUNZE

- A. Body above entirely black.....1. *abnormis* Lec.  
AA. Body above entirely testaceous or bicolored.  
B. Elytra black; prothorax orange.  
C. Lateral margins of prothorax above the tubercles  
narrowing slightly to apical angles.....  
2. *scutellaris* Suffr.  
CC. Lateral margins of prothorax above the tubercles  
straight to apical angles.....3. *neomexicana* Schffr.  
BB. Elytra testaceous or bicolored.  
D. Prothorax entirely orange; at least the basal half of  
the sutural margin of elytra black.....  
4. *californica* Cr.  
DD. Prothorax bicolored or entirely testaceous; at least  
the basal half of the sutural margin of the elytra  
yellow.....5. *varians* Cr.

ZEUGOPHORA ABNORMIS (Lec.)

This species needs no further characterization than that given in the key. It is the only species of the genus with the body, above and below, black. Specimens have been taken from near Lake Superior, New Mexico, Colorado, Washington, and California.

ZEUGOPHORA VARIANS Cr.

Elongate-oblong, subconvex. Top of head and disk of prothorax reddish yellow to black, the latter usually with a yellow median stripe which widens on basal half; elytra usually piceous with a long oval or heart-shaped yellowish spot on center of disk; front of head, antennæ, legs and prosternum dull reddish

yellow. Prothorax with an obtuse lateral spine; entire body sparingly pubescent. Length, 3 mm.

The color as given above is subject to great variation. Specimens occur which are entirely ferrugineous and without trace of black. When the prothoracic disk is black it is often divided in half by a yellow median line. The testaceous and ferrugineous individuals are more common in western collections than the typical *Z. varians*, which is largely black.

Specimens have been taken in Pennsylvania, Massachusetts, Michigan, Illinois, Indiana, Washington, and California. They are generally taken from the foliage of poplar.

#### ZEUGOPHORA SCUTELLARIS Suffr.

This species may be distinguished from all others of the genus, with the exception of *Z. neomexicana*, by the color of the elytra as given in the key. It closely resembles the recently described *Z. neomexicana* Schffr. It can, however, be separated from that species by its shorter length and by the oblique lateral margins of the prothorax above the tubercles, which in *Z. neomexicana* is straight to the apical angles.

Specimens have been taken in Illinois, Indiana, Michigan, New Mexico, Washington, and Oregon. They are quite rare in collections.

#### ZEUGOPHORA NEOMEXICANA Schffr.

This species was described in 1919 from Santa Fé, New Mexico. According to its author it differs from *Z. scutellaris* by being a little longer, and by the lateral margin of the prothorax above the tubercles being straight to the apical angles, instead of oblique. *Z. neomexicana* can readily be distinguished from the other members of the genus by the black elytra and orange prothorax.

#### ZEUGOPHORA CALIFORNICA Cr.

This species is quite rare in collections. It may be distinguished from *Z. varians* by the color characters given in the key. From *Z. scutellaris* and *Z. neomexicana* it is clearly separated by the testaceous or bicolored elytra. It inhabits Oregon and California, and is generally taken from the foliage of willow.

## Tribe CRIOCERINI

LeConte and Horn in 1883<sup>7</sup> state that the distinction between this and the tribe Orsodacnini is feeble and based only on the greater length of the first ventral segment and the different shape of the claws. The facies of the species composing these two tribes are to my notion quite distinct, the difficulty lies in finding definite divisional characters. To the characters mentioned by the above named authors can also be added the deep V-shaped groove of the vertex. This is entirely absent in the preceding tribe, but is pronounced in all the species of Criocerini which I have examined.

This tribe has been much neglected by systematic workers, probably because more than half the species are extremely rare in collections. The only attempt at a revision of the North American species was made by G. R. Crotch in 1873.<sup>8</sup> In this paper he covers only twelve species of the genus *Lema*. Since the date of his paper there have been fourteen additional species described, most of which inhabit western United States.

The tribe is composed of only two genera, both of which are represented by species in western United States. To the single point given by LeConte and Horn for separation of the genera, I have added the character which appears in the key concerning the shape of the tarsal claws. In both genera the claws are of the divergent type, but in the genus *Crioceris* they are contiguous nearly at the base (Fig. 5), while in the genus *Lema* they touch for at least a third of their length (Fig. 4).

## KEY TO THE GENERA OF THE TRIBE CRIOCERINI

- A. Prothorax constricted at middle; tarsal claws contiguous for at least the basal third (Fig. 4).....2. *Lema* Fab.  
 AA. Prothorax cylindrical; tarsal claws separated and contiguous for less than basal third (Fig. 5).....1. *Crioceris* Geoff.

## Genus CRIOCERIS Geoff.

To this genus belongs two species, both of which feed on asparagus. The true asparagus beetle *C. asparagi* (L) occurs in California. *C. duodecimpunctata* (L) has never been taken in western United States.

<sup>7</sup> "Classification of the Coleoptera of North America." Smith. Misc. Coll., Vol. 26, 1883.

<sup>8</sup> Proc. Acad. Nat. Sci. Phila., Vol. 25, 1873, pp. 19-83.

CRIOCERIS ASPARAGI (L)

Body elongate; head, under surface of body, femora, elytral unboned and a wide sutural stripe on the elytra, which widens at the middle and sometimes at the base, bluish-green; prothorax and elytra varying from yellow to reddish, the prothorax often with two bluish or greenish spots on the disk; antennæ from the fifth segment outward black. Length, 7 mm.

Genus LEMA Fabr.

The California Academy of Sciences has probably as great a number of species of the genus *Lema* as any single collection in the country. The following table to the western species of the genus, founded upon that collection, should prove valuable, as there is no adequate guide to the species in the literature at this time. The table is based on color, which is the best divisional character available. It will be found to be accurate, at least as regards typical species, and for any variation from the typical either noted in literature or evinced by the series which I have examined.

KEY TO THE WESTERN SPECIES OF THE GENUS  
LEMA Fabr.

- A. Elytra with the ninth stria interrupted.
  - B. Antennæ and legs pale.....*æmula* Horn
  - BB. Antennæ and legs piceous or black.....*sexpunctata* Oliv.
- AA. Elytra with the ninth stria entire.
  - C. Elytra unicolorus.
  - D. Prothorax black.
    - E. Sides of prothorax broadly rounded in front of the abrupt prothoracic constriction.....*peninsula* Cr.
    - EE. Sides of prothorax not broadly rounded; prothoracic constriction less abrupt.....*concolor* Lec.
  - DD. Prothorax red.
    - F. Abdomen red.
      - G. First segment of antennæ and scutellum red.....  
*arizonæ* Schffr.
      - GG. First segment of antennæ and scutellum black.....  
*cornuta* Lac.
  - FF. Abdomen black.
    - H. Head red.....*coloradensis* Linnell
    - HH. Head, at least in part, black.
      - I. Scutellum elongate, subtriangular, with apex rounded; elytra two and one-half times as long as broad.  
*longipennis* Linnell

- II. Scutellum semi-oval, truncate at apex, elytra not more than twice as long as broad.....  
*collaris* Say
- CC. Elytra bicolored.
- J. Elytra blue, with transverse band at middle yellow or red.  
*balteata* Lec.
- JJ. Elytra without transverse yellow band at middle.
- K. Elytral disk without vitta, the sutural interval alone being black.....  
*flavida* Horn
- KK. Elytral disk at least in part black.
- L. Submarginal vitta between the sixth and eighth rows of punctures.....  
*notativentris* Schffr.
- LL. Submarginal vitta touching the tenth row of punctures (in *confusa* this vitta is sometimes exaggerated in width so as to cover the disk of the elytra, excepting the basal fourth).
- M. Submarginal vitta abbreviated at apex and base.  
*confusa* Chev.
- MM. Submarginal vitta reaching the base.....  
*trilineata* Oliv., sub sp. *nigrovittata* Guer.

***Lema trilineata nigrovittata* Guer.**

For several years there has been a doubt in my mind as to the validity of the two species *L. trilineata* and *L. nigrovittata*. After a thorough study of a large series of these two species, collected not only in the eastern United States (the typical locality of *L. trilineata*) and California (the typical locality of *L. nigrovittata*, but also through Arizona and Utah, where the two species as described intermingle, I am convinced that

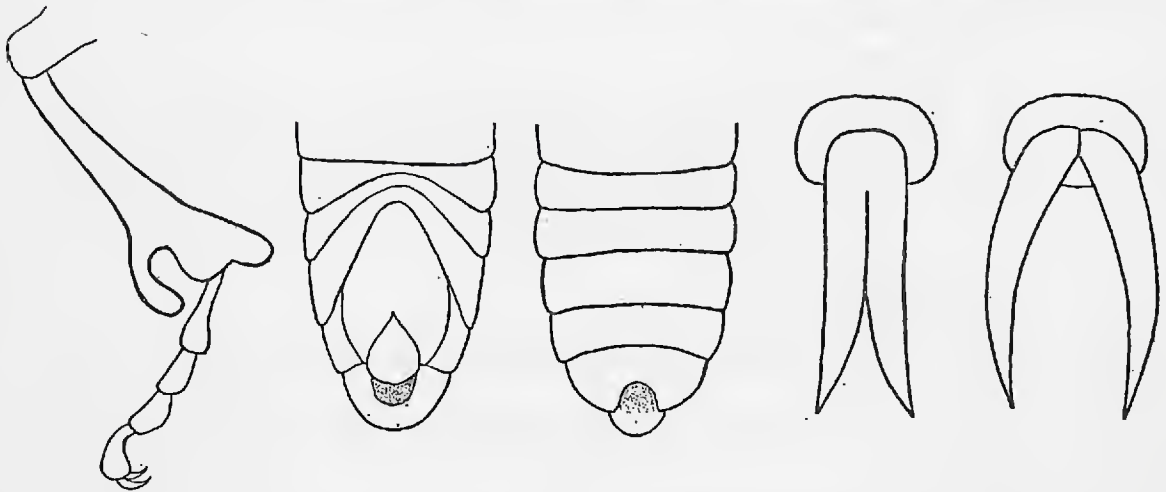


Fig 1

Fig 2

Fig 3

Fig. 4

Fig 5

- Fig. 1. *Syneta hamata* Horn male, posterior tibia;  
 Fig. 2. *Tricolema anomala* Cr. male, ventral abdominal segments;  
 Fig. 3. *Tricolema anomala* Cr. female, ventral abdominal segments;  
 Fig. 4. *Lema trilineata* Oliv., tarsal claws;  
 Fig. 5. *Crioceris asparagi* (L), tarsal claws.

*L. nigrovittata* should be reduced to a subspecies of *L. trilineata*. Color is the only character which serves to separate the typical forms. In a series of 100 specimens I find that 20 per cent have the typical color of *L. trilineata*, 23 per cent the typical color of *L. nigrovittata* and 57 per cent come intermediate between the two. Typical *L. trilineata* extends west into the desert regions of Arizona and California. Typical *L. nigrovittata* is found only in California, and the intermediates are mainly distributed in the regions of Arizona and California where the typical localities overlap. This conclusion is decidedly strengthened by the observation that Jimson weed (*Datura*) is the native breeding plant for both species.

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CONCERNING KIRKALDY'S *NOTONECTA*  
*MEXICANA* VARIETIES *HADES*  
AND *CERES*  
(Hemiptera-Notonectidæ)

BY H. B. HUNGERFORD  
*University of Kansas, Lawrence, Kansas*

In a paper<sup>1</sup> published two or three years ago I reported that in Kirkaldy's collection all of his *Notonecta mexicana* var. *hades* are males and all of his variety *ceres* are females. The typical specimens of the variety *hades* are nearly black and the *ceres* always with scutellum and membrane of hemelytra black and other parts of wing red, or some lighter color grading to horn. The anterior lateral margins of the prothorax in the *ceres* are much flattened and explanate, which is not true for the *hades* forms. This fact when coupled with the very different color pattern of the two would make one hesitate to consider them a single species. However, through the kind assistance of my friend, Mr. R. A. Stirton, a former Kansas University man, I am able to settle the question definitely. Mr. Stirton has made two trips<sup>2</sup> into Central America on biological survey work and, while all of his time was concerned with the strenuous demands of his duties in connection with the collection of vertebrate forms, he managed to remember me and each time captured in passing a few aquatics. When he returned from his

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<sup>1</sup> "Canadian Entomologist," Vol. LVII, p. 238.

<sup>2</sup> Donald R. Dickey Expedition, July, 1925, to May, 1926, inclusive, and November, 1926, to July, 1927, inclusive.